

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) System for cooling an inner wall (7) of a thermal system comprising a double wall (9), said inner wall being subjected to temperatures greater than or equal to the inner wall's physical capacity, said system comprising:

a network of tubes (1) independent of said thermal system to be cooled ;

cooling water (4) circulating under pressure and at a maintained temperature within said tubes;

nozzles (3) connected to said tubes and configured for atomizing the cooling water from said tubes and spraying the cooling water in full cones (5) via said nozzles against said inner wall (7);

adjustable-flow cocks (2) controllable for controlling the atomizing of the cooling water during the spraying,

said network of tubes being an integral part of [[the]]  
an outer wall (9) of the thermal system to be cooled;

a water spraying zone located between said respective inner and outer walls and maintained at a negative pressure; and

[[a]] another system configured for maintaining the negative pressure within the water spraying zone delimited by said respective inner and outer walls, wherein the negative pressure is maintained for an evaporation of the sprayed cooling water at a low temperature.

2. (currently amended) System according to claim 1, wherein the adjustable-flow cocks (2) pass through the tubes (1), and said cocks terminating in said nozzles (3).

3. (currently amended) System according to claim 1, wherein said tubes are installed on [[the]] an inside surface of the outer wall (9).

4. (currently amended) System according to claim 1, wherein said tubes are installed on [[the]] an outside surface of the outer wall (9).

5. (previously presented) System according to claim 1, wherein the cooling water (4) circulating in the network of tubes (1) is stabilized with respect to mineral content and pH.

6. (previously presented) System according to claim 1, wherein the network of tubes is in a closed circuit and the cooling water (4) is regenerated continuously.

7. (previously presented) System according to claim 1, wherein the cooling water (4) contained in the network of tubes (1) is maintained at a temperature less than or equal to 60°C.

8. (previously presented) System according to claim 1, wherein, the system for maintaining the negative pressure with the water spraying zone (6) comprises a steam-extraction system (10) that extracts steam produced within the water spraying zone.

9. (previously presented) System according to claim 8, wherein the steam-extracting system (10) is comprised of a compressor to compress said extracted steam and inject the compressed steam into a dedicated exchanger unit so that said compressed steam acquires a temperature and a pressure suitable for power co-generation.

10. (previously presented) System according to claim 1, further comprising:

a detecting system (11) composed of contact sensors which permit continuous monitoring of the wall temperature that is to be regulated.

11. (previously presented) System according to claim 1, wherein said cocks include micrometric adjustment.

12. (previously presented) System according to claim 1, wherein said cocks are provided with computer-controlled automatic operation.

13. (currently amended) Method of cooling an inner wall of a thermal system comprising a double wall, employed in a cooling system, said inner wall being subjected to temperatures greater than or equal to its physical capacity, in which cooling water circulating under pressure is contained in a network of tubes independent of said thermal system to be cooled, said tubes containing and being equipped with nozzles provided for atomizing the water and spraying it in full cones against said inner wall and controlled by adjustable-flow cocks, characterized in that it comprises maintaining ~~[[the]]~~ a water-spraying zone delimited by said ~~respective~~ inner and outer walls under negative pressure for an evaporation of the cooling water at a low temperature, and the network of tubes being an integral part of the outer wall of the thermal system to be cooled.

14. (currently amended) System according to claim 1, wherein,

the system for maintaining the negative pressure within the water spraying zone (6) comprises a steam-extraction system (10) located in ~~[[an]]~~ a vertically uppermost part of the water

spraying zone and extracts steam from the upper part of the water spraying zone, and

the steam-extracting system (10) comprises a compressor to compress said extracted steam and inject the compressed steam into a dedicated exchanger unit so that said compressed steam acquires a temperature and a pressure suitable for power co-generation.

15. (currently amended) System according to claim 1, wherein,

the system for maintaining the negative pressure within the water spraying zone (6) comprises a steam-extraction system (10) located in a vertically upper part of the water spraying zone and extracts steam from the upper part of the water spraying zone.

16. (previously presented) System according to claim 1, wherein, the system configured for maintaining the negative pressure within the water spraying zone delimited by said respective inner and outer walls, the negative pressure maintained for the evaporation of the sprayed cooling water at the low temperature of less than or equal to 70°C.

17. (previously presented) The method according to claim 13, wherein the low temperature is less than or equal to 70°C.

18. (currently amended) System for cooling an inner wall (7) of a thermal system comprising an inner wall and an outer wall, said system comprising:

a network of tubes (1) independent of said thermal system to be cooled, said network of tubes being an integral part of the outer wall;

cooling water (4) circulating under pressure within said tubes;

nozzles (3) connected to said tubes and configured for atomizing the cooling water ejected from said tubes and spraying the cooling water in full cones (5) via said nozzles against the inner wall (7);

a water spraying zone located between the inner and outer walls and maintained at a negative pressure; and

a steam-extraction system located in a vertically upper part of the water spraying zone and configured for maintaining the negative pressure within the water spraying zone by extracting steam from within the upper part of the water spraying zone and compressing the extracted steam, wherein the negative pressure is regulated for an evaporation of the sprayed cooling water at low temperature.

19. (previously presented) System according to claim 18, wherein, the steam-extraction system configured for maintaining the negative pressure within the water spraying zone by extracting steam from within the upper part of the water spraying zone and compressing the extracted steam, with the negative pressure regulated for the evaporation of the sprayed cooling water the low temperature of less than or equal to 70°C.